IN THE SPECIFICATION

Please amend the specification as follows:

Replace the paragraph spanning pages 1-2, between page 1, line 27, and page 2, line 8 of the specification with the following:

The scanning device described in U.S. Pat. No. 5,013,108 by contrast, is a post-objective scanner as shown in Figure. 1 of U.S. Pat. No. 5,013,108. A scanning device of this type uses a relatively simple spot forming/focusing main lens ~~100~~ located prior to a deflection system ~~102~~. This post-objective scanning device has a reflective optical correction system ~~104~~ located after the deflection system ~~102~~. The surface to be scanned is denoted by reference number ~~24~~. The field correction system ~~104~~ described in U.S. Pat. No. 5,013,108 is a sophisticated system, which not only provides a flat image field and telecentricity, but also corrects for aberrations in the scanning spot, like coma and spherical aberration. This correction system is called the Banana Mirror System (BMS) and consists of a set of two cylindrical mirrors, a first convex and a second concave with a stronger power than the first, preferably a set of a convex hyperbolic cylindrical mirror

and a concave parabolic cylindrical mirror.

Replace the paragraph on page 6, between lines 11-25 of the specification with the following:

Figure 1 shows a schematic diagram of a post-objective scanning device 1, as described in U.S. Pat. No. ~~5,013,018~~5,013,108. This device comprises a radiation source 10, for example a laser, which supplies a primary radiation beam PB. This beam passes through a main imaging system 12, which, in combination with a correction system 22, images the radiation emitting window of the radiation source in the plane of a surface 28 to be scanned and forms a scanning spot 30 in this surface. The imaging system is currently a lens system comprising one or more lens elements, for example an aspherical lens, but may also be a mirror system. Between the radiation source and the main imaging system further optical elements 14, such as beam shaping elements, may be arranged. The primary beam from the imaging system is incident on a reflective polygon 16, which rotates about an axis 18 and comprises a number of mirrors, or reflective facets 20. A facet of the polygon that is momentarily illuminated by the primary beam

PB reflects the beam towards the surface 28. Upon rotation of the polygon 16 the illuminated facet deflects the reflected beam in the plane of the drawing of Figure 1 so that the scanning spot 30 is moved across the surface 28. The beam that is reflected by a polygon facet is called scanning beam SB hereinafter.

Replace the paragraph on page 7, between lines 14-18 of the specification with the following:

Figure 1 shows a scanner design in which the rotational axis of the mirror polygon is arranged symmetrically with respect to the axis of the chief ray of the primary beam PB and the main imaging system. This design is preferred for the embodiments described herein. However the invention may also be used in a scanning device designed as shown in Figure 1 of U.S. Pat. No. ~~5,013,018~~ 5,013,108.

Replace the paragraph on page 10, between lines 7-10 of the specification with the following:

The amplitude of movement of the beam deflector 42 is chosen to ensure that the primary beam is deflected at an angle sufficient to maintain the beam in line with the centre of the facet 20a-c.

Consequently, the choice of beam ~~deflector 46~~ deflector 42 depends on the position and construction of polygon 16.

Replace the paragraph on page 10, between lines 21-30 of the specification with the following:

Figure 3 schematically shows an improved embodiment of a scanning device with active facet tracking. In this Figure only the features, which distinguishes this embodiment from that of Figure 2 are shown. In the device of Figure 3 an additional lens or--system ~~46~~ 47, which may be called magnifying tracking lens, is arranged between the beam deflector 42 and the main imaging system 12. The lens ~~46~~ 47 focuses the beam from the beam deflector 42 at a position between this lens and the main imaging lens 12, i.e. re-images the original primary spot in the beam deflector of Figure 2 in a new spot at this location. This new spot 44 is the primary spot in the device of Figure 3, according to the definition of primary spot given herein above. The spot 44' in the beam deflector 42, which is conjugated with the primary spot 44 may be called pre-primary spot.

Replace the paragraph on page 10, between lines 31-34 of the specification with the following:

The magnifying tracking lens ~~28~~ 47 magnifies the deflection provided by the beam deflector 42. This lens, together with the main lens 12 act to focus the primary beam on the virtual aiming point 40 behind the polygon mirror, as in the device of Figure 2. Aiming point 40 is conjugated with the deflection point 44 or 44' (in the beam deflector 42).

Replace the paragraph on page 11, between lines 1-14 of the specification with the following:

The magnifying tracking lens ~~46~~ 47 allows substantially reducing the required deflection by the beam deflector to achieve the same deflection at the location of the polygon 16 as in the device of Figure 2. The reduction may be a factor of ten. This allows using the better properties the beam deflectors, mentioned herein above, have at low deflection angles. The amplitude of tracking angle deflection required from the beam deflector 42 is reduced by a factor M, M being the linear magnification with which spot 44 is imaged onto spot 44' by the magnifying tracking lens

(MTL) ~~46~~ 47. Thus M is the ratio between the distance from spot 44' to MTL 28 and the distance from MTL 28 to spot 44. In other words the MTL ~~46~~ 47 performs a linear demagnification from spot 44' towards spot 44 by 1/M and, as a consequence, it performs in this direction an angular magnification by M. So as a result the spot 44' is M times larger than spot 44 and the maximum tracking angle α_T at point spot 44' is M times smaller than required at spot 44. Thus the deflection by the additional deflector 42 required in the embodiment of Figure 3 is M times smaller than required in the embodiment of Figure 2.

Replace the paragraph on page 11, between lines 15-24 of the specification with the following:

Apart from the advantage of the smaller required tracking angle at spot 44', the MTL ~~28~~ 47 offers the additional advantage of a larger beam size at the surface of the additional deflector 42. This reduces contamination sensitivity and reduces high optical power density problems. Also the diffraction efficiency of an AOD, AOM or some types of EOD, when used as a beam deflector 42, becomes higher with a larger spot size, because its own beam divergence is

smaller. So by choosing an appropriate value for M with the MTL ~~28~~ 47, the system can be tuned to optimum working conditions with respect to the maximum tracking angle and the spot size for the additional, or tracking, deflector at spot 44'. As an example, if the maximum deflection angle at spot 44 is 33 mrad, this angle is ~~3,3~~ 3.3 mrad at spot 44', whilst if spot 44 is 30µm, spot 44' is 300µm.

Replace the paragraph on page 11, between lines 31-34 of the specification with the following:

Passive facet tracking does not need the beam deflector and the means for driving this deflector in synchronism with the rotation of the polygon mirror of the active facet tracking. Optionally, in passive facet tracking a magnifying tracking lens, such as lens ~~28~~ 47 in Figure 3 may be used.

Replace the paragraph on page 12, between lines 1-8 of the specification with the following:

As shown in Figure 5, a beam B from a radiation source, not shown and preferably a laser, is coupled into the facet tracking

system by means of a mirror 50. This mirror reflects the beam to a facet 20b of the polygon mirror 16. This facet reflects the beam as beam ~~(B'')~~ (B') to a folding mirror 52, which directs beam B' to a concave, cylindrical or spherical, mirror 54, which may be called facet tracking mirror. This mirror reflects the beam B' back to the facet of the rotating polygon via mirror 52. The facet then reflects the beam outwards as beam B'' towards point A, which beam, upon rotation of the polygon is deflected over a deflection angle α_T.

Replace the paragraph on page 12, between lines 17-30 of the specification with the following:

This would be exactly the case if the centre of curvature M of the facet tracking mirror 54 is located at the facet momentarily illuminated by the incoming beam B. In that case, after the second reflection by the facet, the deflection of beam B' would be negligible. By giving the centre M a small off-set, i.e. position it at small distance s from the facet and in the polygon, as shown in Figures 4 and 5, a small deflection movement is imparted to the outgoing beam B''. The amplitude α_T of this periodic deflection,

which may also be called mini-scan, is determined by the off-set s. In this way the beam B'' is made suitable for facet tracking. This beam has its deflection/rotation point virtually at point 56, the location of spot SP2, but in reality deflection/rotation occurs at the rotating polygon 16. Also, the focus of beam B'' is located in point 56, because the second reflection at the polygon facet causes mirror-imaging of spot SP1 onto spot SP2. The beam B'' is guided to the main imaging system of the scanning device so that, in the terminology used in the description of Figures 2 and 3, the spot SP2 can be called a pre-primary spot ~~10'~~ 44' or a primary spot ~~10~~ 44, depending on whether a magnifying tracking lens is used or not.

Replace the paragraph on page 13, between lines 16-22 of the specification with the following:

As the incoming beam, in particular beam B' is focused near the facet tracking mirror 54, the cross-sections of the beam at the rotating polygon 16 for the first and second reflections are still small, because the facet tracking mirror 54 is not far from the rotating polygon 16. Moreover, if the magnifying tracking lens ~~46~~ 47 is applied, the size of spot SP2, or that of spot SP1, can be M

times larger and so beam divergence will be M times smaller which helps to limit growth of the cross-section of the primary beam on its way from the virtual deflection point 56 via the main imaging system 12 to the rotating polygon.

Replace the paragraph on page 14, between lines 12-16 of the specification with the following:

The embodiments described herein above all make use of the Banana Mirror system described in U.S. Pat. No. ~~5,013,018~~5,013,108. The main features of interest in these embodiments relate to the facet tracking systems used to deflect an illumination beam in concert with a rotating reflective polygon, in order to reduce undesired optical effects when the beam is reflected from the polygon surface off axis.